TECHNICAL SPECIFICATIONS

WASHINGTON STATE FERRIES

M.V. RHODODENDRON DRYDOCKING

CONTRACT NO. 00-7055

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TECHNICAL SPECIFICATIONS

For the following Technical Specifications, the Contractor is to provide all labor, material and equipment to accomplish each and every Bid Item unless otherwise specified.

The Specification Item sub-titles in brackets are for WSF internal use only, for Life Cycle Cost modeling. Bidders should ignore such bracketed sub-titles.

1. DRYDOCK VESSEL
{MAINTENANCE}

M.V. RHODODENDRON Vessel Particulars:
Length: 227’ 6”, Beam: 62' 0”, Draft: 10' 0", Gross Tons: 937

A. Drydock Vessel for cleaning, painting, inspections, the work specified herein and any necessary repairs.

B. Block spacing shall be at twelve foot (12’) centers. Within twenty-four (24) hours of Docking, provide three (3) copies of the block position drawing to the WSF Inspector indicating the block positions used.

C. Vessel shall be blocked to expose the block positions used at the previous docking. **Attachment No. 2**, “BLOCK POSITION FORM” showing previous docking position, is provided for reference.

2. TEMPORARY SERVICE
{MAINTENANCE}

A. Install one (1) telephone on board in a location designated by the Vessel Staff Chief Engineer. The telephone is to have one (1) outside line with toll-free access to Seattle and vicinity and, if different, one (1) line for local numbers. The telephone shall have touchtone service if available from the Contractor's telephone system.

B. Provide and maintain electricity, water, safe lighted gangway and trash removal services while Vessel is in the Contractor's facility.

C. Provide safety and security for the entire Vessel throughout the contract period until such time as the WSF Representative has accepted re-delivery of the Vessel. Every reasonable precaution shall be taken to protect the Vessel from the hazards of fire, flooding, pilferage, malicious damage, and other events including cataclysmic phenomena of nature.

D. Provide and maintain comprehensive and effective fire prevention and fire detection, and fire fighting programs and systems sufficient to ensure the safety and integrity of the Vessel. Provide personnel trained in shipboard fire fighting techniques and also trained to cooperate with and assist local fire fighting organizations. Provide sufficient shore fire lines to ensure an adequate supply of fire fighting water, at sufficient pressure, and maintain an adequate number of tested fire-hoses aboard the Vessel to effectively fight fires at any location in the Vessel.

E. Provide and maintain portable fire extinguishers in sufficient quantity, and of the appropriate type, to combat local fires of any class. Provide sufficient fire watches, including roving watches as may be required, to ensure that fires that may be inadvertently started by welding sparks or heat, electrical malfunction, or spontaneous combustion are detected, reported and promptly extinguished.

3. SEA CHEST ANODES REPLACEMENT
{MAINTENANCE}

A. Renew four (4) Morelco cathodic protection anodes in the two (2) sea chests. Units are mounted in the sea chests on a single through stud.

B. Remove existing anodes and install new WSF supplied anodes. Disconnect and reconnect electrical connections. Install anodes with new Contractor furnished gaskets and grommets. Demonstrate electrical isolation of the anodes to the WSF Inspector and the Vessel Staff Chief Engineer.

4. SEA VALVES
{MAINTENANCE}

A. Open, or remove as required, the below listed sea valves; clean, blue and inspect for proper water tightness (valve disk to valve seat contact), including valve stems. All valves two inch (2”) and under shall be replaced with new Contractor furnished valves, the removed valves shall be left with the Vessel Staff Chief Engineer.

For the M.V. Rhododendron:

Qty	Service	Size	Type
2	Sea Chest Vent	1½"	Gate
2	Sea Chest Blow Down Valve	½"	Gate
2	Fire Pump Suction Valve	6"	Gate
1	Auxiliary	4"	Gate

B. Sea valves shall be inspected by the WSF and USCG Inspectors, and Vessel Staff Chief Engineer for the following:

1. General material condition.
2. Valve disk to valve seat contact.
3. Proper mechanical operation.

C. Prior to installation, hydrostatically test all new and reconditioned valves to the satisfaction of the WSF Inspector, USCG Inspector and Vessel Staff Chief Engineer.

D. Provide three (3) written copies of the report of test, inspection, all repairs to existing valves and all new valves installed to the WSF Inspector.

E. Inspect for water leakage prior to launching. Any leakage will be repaired at the Contractor's expense.

5. RUDDER INSPECTION, NO. 1 AND NO. 2 ENDS {MAINTENANCE}

A. Erect staging or provide suitable man lifting device on both sides of No. 1 and No. 2 End rudders for inspection. Remove staging upon completion of all affiliated work.

B. Drain and pressure-test rudders for leaks in the presence of the WSF and USCG Inspectors and the Vessel Staff Chief. Test pressure shall be 42" of water with Manometer, or 1.5 PSI on acceptable calibrated pressure gage that has 1.5 PSI at mid scale range within four-eight (48) hours of drydocking the Vessel. Accepted test will be no leaks for one (1) hour. Provide three (3) copies of the test results to the WSF Inspector within twenty-four (24) hour upon completion of the test/inspection.

NOTE:

The rudder voids are filled with yellow pine wood and hydrolene.

C. Take and record clearances of rudder pintle and rudderstock bearings on No. 1 and No. 2 End rudders within four-eight (48) hours of drydocking the Vessel. Provide three (3) copies of the test results to the WSF Inspector within twenty-four (24) hours upon completion of the test/inspection.

D. Remove all existing packing rings and replace with Contractor furnished new packing of same size and material. On removal of the existing packing, clean housing and packing gland to the satisfaction of the WSF Inspector and Vessel Staff Chief Engineer. Adjust packing once Vessel is undocked and assure no leakage of water.

6. PROPELLER INSPECTION, NO. 1 AND NO. 2 ENDS
{MAINTENANCE}

A. Erect and remove staging in areas around No. 1 and No. 2 End propeller blades to accomplish all affiliated work and inspection required.

B. Polish the No. 1 and No. 2 End propellers by power disk sanding, using 80 grit or finer abrasive. Thoroughly clean propeller blades for nondestructive testing.

C. Inspect No. 1 and No. 2 propellers for damage and proper blade track. Conduct a Nondestructive test for surface cracks and any other defects on the Propeller Hub, Propeller Blades and Mounting Flange in the presence of the WSF and USCG Inspectors and the Vessel Staff Chief Engineer. Provide three (3) copies of a written report of findings to the WSF Inspector within twenty-four (24) hours of test completion.

7. VOID (SPONSON) INSPECTION
{MAINTENANCE}

A. Open four (4) bolted void manhole covers. Provide the services of a Marine Chemist certificate for "SAFE FOR WORKERS". Maintain the certification during the course of the inspection. Provide lights and ventilation as necessary.

B. Using Contractor furnished new gaskets and grommets close the covers when the inspections are complete.

PAINTING OF VESSEL AND HULL PRESERVATION

Special Note

(ATTACHMENT NO. 1)

Area Preparation, Surface Preparation, Grit Blasting, Paint Coatings, and Inspection for Vessel's hull, curtain plates, casing and super structure shall be in accordance with Washington State Ferries Marine Coating Specification 01/03 unless otherwise specified in the following Specification.

8. FRESH WATER WASH OF VESSEL HULL AND GUARD {MAINTENANCE}

A. Within twenty-four (24) hours of Drydocking Vessel, perform a Low-Pressure Water Cleaning (LP WC) at 3,000-3,500 PSI. in accordance with SSPC-SP 12/NACE 5. The wand shall be held no more than twelve inches (12") from the surface being washed. The entire Hull from the top of the Guard to the Keel, including, flat keel, all horizontal and vertical surfaces of the guard, rudders, sea chests, sea chest strainers, propellers shall be washed. The wash shall leave no visible growth or residue after the hull dries from washing.

B. Sea chest strainer plates shall be removed for cleaning, preparation and painting and reinstalled upon completion of all related work and inspection.

9. PREPARATION OF VESSEL HULL FOR GRIT BLASTING {MAINTENANCE}

NOTE:

Care shall be taken to avoid damage to the CAPAC anodes and reference cells. The anodes are located at frame 54 port and starboard, both ends, approximately nine feet (9') above the keel. The reference cell is located on the starboard side toward the No. 1 End.

A. Provide covering and protection on propellers, propeller bearings, exposed shafting, CAPAC anodes and reference cells, all through-hull penetrations and entrance ways to protect and prevent grit blast material from causing damage or entering the Vessel. Blank the main sea chest openings from inside while the valves are removed for maintenance, so the valve mounting flange may be painted on the inside.

B. Prior to Blasting and upon removal of protective items an inspection will be required by the Contractor, WSF Inspector and Vessel Staff Chief Engineer.

10. BLASTING OF THE GUARD AND ANTI-CORROSION COATING {MAINTENANCE}

NOTE:

For purposes of bidding assume that **200 Square Feet** of the Guard will require grit blasting to SSPC-SP6, Commercial Blast Cleaning. Upon completion of the grit blast, the Contract will be adjusted upward or downward to account for the actual scope of grit blasting authorized by the WSF Inspector.

NOTE:

The Contractor shall have the option to UHP-WJ4, Ultrahigh-Pressure Water Jetting only if the hull profile is taken and is within the required profile in **Attachment No. 1** and approved by the WSF Inspector.

A. Grit blast areas of abrasion and corrosion on the horizontal and vertical surfaces (top, bottom, and side) of the guard, as authorized by the WSF Inspector, to an SSPC-SP6, Commercial Blast Cleaning.

B. The coating, for at least two inches (2") bordering the blasted area, shall be feathered to a smooth surface.

C. Apply one (1) coat of INTERNATIONAL Intertuf 262 Series epoxy, Red, to a minimum of 5 mils (DFT) to all prepared surface areas repaired in this Item.

D. Apply one (1) coat of INTERNATIONAL Interguard 267, Buff, to a minimum of 5 mils (DFT) of contrasting color to all surfaces painted in paragraph "C" of this Work Item.

11. PAINTING OF VESSEL GUARD, FULL COAT {MAINTENANCE}

A. Apply one (1) coat of INTERNATIONAL Intercare 755, Black, to a minimum of 2 mils (DFT) to all surfaces of the Guard (top, bottom and side).

12. BLASTING OF THE HULL BELOW THE GUARD AND ANTI-CORROSION COATING {MAINTENANCE}

NOTE:

For purpose of bidding assume that **3,000 Square Feet** of hull below the guard will require grit blasting to SSPC-SP6, Commercial Blast Cleaning. Upon completion of the grit blasting, the Contract will be adjusted upward or downward to account for the actual scope of blasting authorized by the WSF Inspector.

NOTE:

The Contractor shall have the option to UHP-WJ4, Ultrahigh-Pressure Water Jetting only if the hull profile is taken and is within the required profile in **Attachment No. 1** and approved by the WSF Inspector.

A. Blast areas of abrasion, corrosion, and steel repairs from bottom of guard to the keel; including flat keel, sea chests, strainer plates and rudders, to an SSPC-SP 6, Commercial Blast Cleaning, as authorized by the WSF Inspector.

B. The coating, for at least two inches (2") bordering the blasted area, shall be feathered to a smooth surface.

C. Apply one (1) coat of INTERNATIONAL Intertuf 262 Series epoxy, Red, to a minimum of 5 mils (DFT) to all prepared surface areas repaired in this Item.

D. Apply one (1) coat of INTERNATIONAL Interguard 267, Buff, to a minimum of 5 mils (DFT) of contrasting color to all surfaces painted in paragraph "C" of this Work Item.

13. ANODE AREA CAPASTIC REPLACEMENT
{MAINTENANCE}

NOTE:

For bidding purposes, assume that **25 Square Feet** of failed capastic will require repair. The capastic shall be applied to a minimum thickness of 1/8 inch in the area of the shield out from the faired in area around the anode. The capastic shall be troweled so as to achieve a smooth overall surface.

A. Renew capastic around the CAPAC anodes using 'Capastic' epoxy troweling compound made by ELECTROCATALYTIC, INC.

B. Build up a minimum of 22 mils DFT of epoxy Anti-Corrosion coating over the capastic areas and the secondary dielectric shield areas.

14. PAINTING OF VESSEL HULL, BELOW WATERLINE ANTI-FOULING
{MAINTENANCE}

NOTE:

For bidding purposes, assume that **2,000 Square Feet** of the hull will require the first coat of ANTI-FOULING COATINGS. The Contract will be adjusted upward or downward, using the square footage determined in Grit Blasting Hull Item.

A. Apply one (1) coat of INTERNATIONAL INTERSPEED ANTIFOULING, BRA 640, Red, to a minimum of 4 mils (DFT) to all surfaces painted below the waterline.

15. PAINTING OF VESSEL HULL, BELOW WATERLINE ANTI-FOULING (FULL COAT)
{MAINTENANCE}

A. Apply one (1) full coat of INTERNATIONAL INTERSPEED ANTIFOULING, BRA 640 anti-fouling, Black, to a minimum of 6 mils (DFT) to all surfaces of hull below the waterline.

16. DRAFT MARKS
{MAINTENANCE}

A. Repaint all draft marks and underwater hull markings, using INTERNATIONAL Interlux Y5584, Shark White.

17. PAINTING OF VESSEL HULL, ABOVE THE WATERLINE {MAINTENANCE}

NOTE:

For purpose of bidding assume that **1,000 Square Feet** of hull above the waterline will require painting. The contract will be adjusted upward or downward using the square footage determined in Grit Blasting Hull Item.

A. Apply one (1) coat of INTERNATIONAL, Intercare 755, WSF Green, to a minimum of 2 mils (DFT) to all surfaces prepared above waterline in Grit Blast Hull Item.

B. Apply one (1) coat of INTERNATIONAL Intercare 755, Black, to a minimum of 2 mils (DFT) to the entire guard.

18. REPLACE BACKING RINGS ON NO. 1 AND NO. 2 END INBOARD SHAFT SEALS {MAINTENANCE}

A. Contractor shall provide the services of Sound Propeller, 1608 Fairview Ave. E., Seattle, WA. 98102, Phone No: (206) - 325-5722, to disassemble and reassemble the John Crane Deep Water Seals assemblies on the No. 1 and No. 2 Ends. WSF will furnish New Spit Backing Rings.

B. Remove the cooling water inlet and outlet piping valves, bushing on vent side and nipples connected directly to the seal housing and replace with Contractor furnished New 70-30 Bronze valves (2), bushing (1) and nipples (2) on both No. 1 and No. 2 Ends.

NOTE:

Each End: one (1) Valve is ½" dia. Inlet (lower) side of seal, one (1) Valve is ¾" dia. on the vent (upper) side, Bushing is ½" to ¾" connected to nipple on the vent (upper) side and two (2) Nipples ½" direct to housing (upper and lower).

C. Clean and flush vent line from seal to overboard, flushing will be direction of seal to overboard and ensure vent-piping line is free fully opened.

19. PRESSURE WASH TOPSIDE AND VEHICLE DECKS

{MAINTENANCE}

A. Low Pressure Fresh Water Clean (LP WC/SC1) the entire exterior of the Vessel from the Vehicle Deck to the Top of the mast, at 3,000-5,000 PSI to an SSPC-SP 12/NACE 5. The wand will be held no more than twelve inches (12") from surface being washed. Use ZEP Formula 50 or equal when washing, DO NOT USE INTERNATIONAL, Prep 88 or INTERNATIONAL GMA, since the intent is to do a spot coat preservation, and WSF does not wish to etch paint in areas which will not be over coated. The area to be washed is the entire exterior surface and exterior components of the Vessel. These areas include the: Shelter Deck areas; Vehicle Deck areas; Exterior Curtain Plate and Passenger Cabin House Sides, Stairwells; all Appurtenances; Masts, Stacks including Stack Tops; Pilot house and Pilot House Tops; Crew Quarters and Crew Quarters House Tops; all External Surfaces of the Passenger Decks, Vehicle Decks including the Exterior Overheads, Bulkheads, Pockets which is opened to the weather in the Casings, Decks, Stairwells and Shelter Areas; Rescue Boat Stations, Anchor handling areas, all Deck Screens and stanchions, Deck Coamings.

B. Clean all exterior windows upon completion of Water Wash. Glass to be cleaned to remove all dirt, paint, water streaks and other foreign matter. Care will be taken to prevent scratching of window surface.

NOTE:

The contractor is advised to exercise care and caution to assure that all insulation, light fixtures, speakers cabling, alarms, signage, and appurtenances are protected and not damaged.

20. PUMP OUT SEWAGE TANK

{MAINTENANCE}

A. Contractor will be required to Pump out Sewage Tank (2,500 Gal.) upon notification from WSF Inspector during the Contract schedule.

(END)